

(12) **UK Patent Application** (19) **GB** (11) **2 271 756** (13) **A**

(43) Date of A Publication 27.04.1994

(21) Application No **9221979.9**

(22) Date of Filing **20.10.1992**

(71) Applicant(s)
Welton Packaging Limited

(Incorporated in the United Kingdom)

**Station Road, Midsomer Norton, Bath, Avon,
BA3 2BE, United Kingdom**

(72) Inventor(s)
Delmund Allsopp Penney

(74) Agent and/or Address for Service
Mewburn Ellis
2 Cursitor Street, LONDON, EC4A 1BQ,
United Kingdom

(51) INT CL⁵
B65D 33/00

(52) UK CL (Edition M)
B8K KCB K2H4 K2K1

(56) Documents Cited
GB 1294652 A **EP 0343763 A2** **EP 0220476 A2**
EP 0089680 A **US 4421805 A** **US 4253562 A**

(58) Field of Search
UK CL (Edition L) B8K K2H4 K2K1
INT CL⁵ B65D 33/00
ONLINE DATABASES : WPI

(54) **Plastic bags with means facilitating opening**

(57) A plastic bag has an enhanced-friction patch (10) provided at or near the top of its side walls, formed e.g. by knurling, stippling or perforation. The patch (10) facilitates manual gripping of the side walls, making it easier to separate them when opening the bag. The advantage is most pronounced with mass-produced plastic bags of very thin material e.g. less than 50µm.

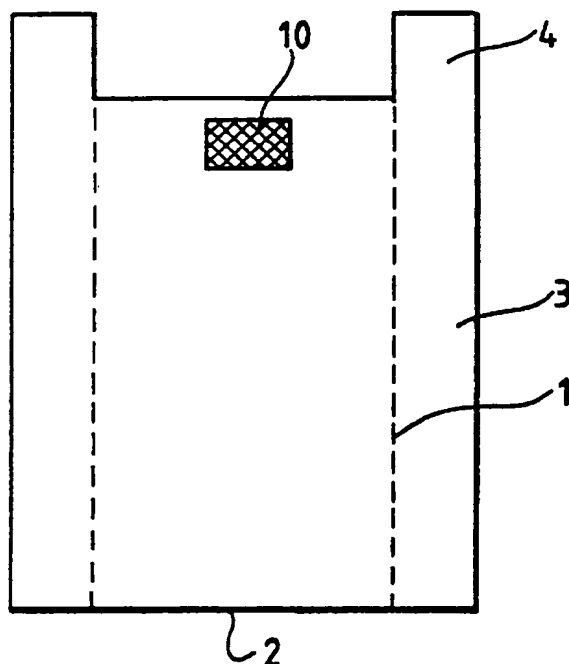


FIG.1.

At least one drawing originally filed was Informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

GB 2 271 756 A

1/1

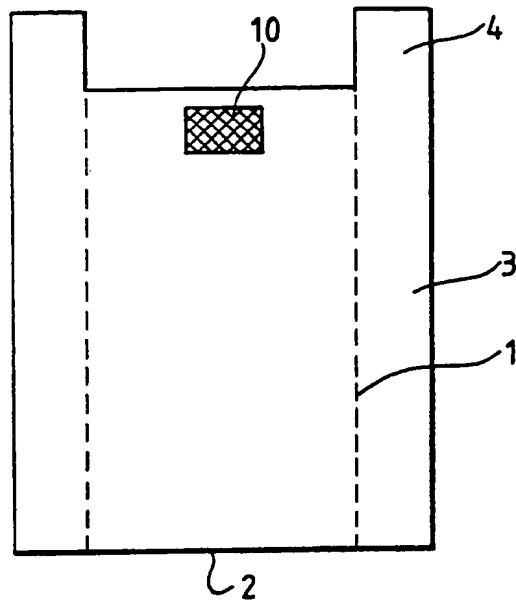


FIG. 1.

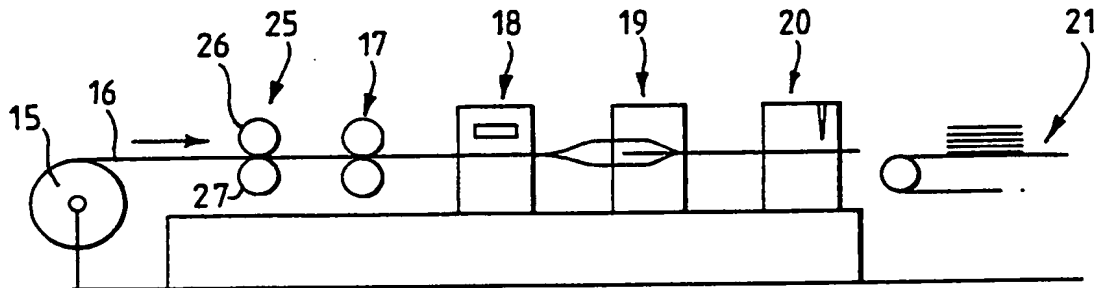


FIG. 2.

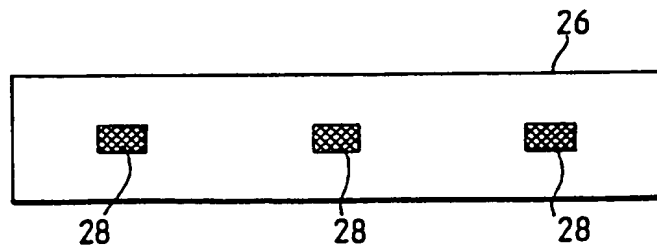


FIG. 3.

BAGS

This invention relates to plastic bags.

Plastic bags are used on an enormous scale in many commercial and non-commercial contexts. Well-known examples occur in supermarkets, e.g. the small bags in which a customer puts their own purchases - typically fruit and vegetables - and the carrier bags available at the check-out.

With the desire to achieve maximum efficiency of material use, the recent tendency has been towards bags of progressively thinner material. Concurrent advances in polymer technology have enabled plastics as thin as 20µm or thinner to make effective bags, e.g. the so-called "vest carriers" which are provided in stacks at supermarket check-outs. But, the very thin material brings its own problems and the aim of the present invention is to address one of these problems.

In the invention, we provide a plastic bag having at least one friction-enhancing location on its outer surface, for engagement by hand to help open the bag. Preferably, each side of the bag has a friction-enhancing location and they are opposed so that they can easily be gripped between two hands, or between the fingers and thumb of one hand, when opening the bag.

In this way, we reduce the difficulty of opening plastic bags, which is particularly serious with mass-produced plastic bags made of very thin material. It is

common for such bags to be provided flattened e.g. as a result of having been on a roll or in a stack, and it is also common for them to become statically charged during their manufacture. These factors combine to give an end product in which the two sides of the bag are adhered closely together and it is difficult to get them apart, as most people know from their own experience.

As mentioned, it is desirable if corresponding friction-enhancing locations are provided opposing on the two sides of the bag. Preferably, the friction-enhancing location is localised towards the top (opening) of the bag, and most preferably at or adjacent its top edge. For example, it may be a patch positioned at or adjacent the top edge. Or, it may be a strip extending along at or near the top edge. This is consistent with most people's preferred practice in opening bags, which is use the fingers and thumb of one hand rather than to rub the bag between the hands.

For convenience in mass production, it is particularly preferred to make the friction-enhancing location without using any additional material, but rather by forming it integrally in the material from which the bag is made. So, the friction-enhancing location may be made by forming a physical roughness of the plastics material e.g. by knurling, stippling, perforating or some other appropriate process.

The present technique may be applicable with a wide variety of types of bag. However it is most appropriate

for bags made of thin plastics, typically less than 100µm, more particularly less than 50µm and, e.g. in the specific application to so called "vest carriers", between 15 and 25µm. The very thin bags are typically of high-density polyolefin material.

5 In another aspect the invention provides a method of making a plastic bag, characterised by forming at least one friction-enhancing location on the outside surface of the bag. The friction-enhancing location may be formed in accordance with any of the various preferred modes mentioned above.

10 In a preferred version, the method is a continuous method in which a series of bags is prepared from a single, continuous original supply of bag material e.g. a roll of blown-film extruded plastics tube or film.

15 The preferred process subjects such a tube or film to the impress of a rough element e.g. a knurling or perforating element, so as to produce the friction-enhanced finish. Most conveniently, the impression is made by a roller.

20 An embodiment of the invention is now described by way of example, with reference to the accompanying drawings in which:

Figure 1 is a front view of a vest carrier bag;

25 Figure 2 is a schematic side view of a production line for making carrier bags, and

Figure 3 shows the face of an impressing roller.

Figure 1 shows a vest carrier bag of the familiar

type available at supermarket check-outs.

The bag is made from high-density polymer film, 22 μ m in thickness. It has the conventional format of such bags, namely a rectangular front panel 1 with a corresponding back panel behind, connected by a straight seal 2 along the bottom and gusseted seals 3 down the sides, to increase the useful volume of the bag. The sides extend up into loops 4 for handles.

In the centre of the front wall 1, adjacent the top edge between the handles 4, the bag has a textured or knurled patch 10. A corresponding textured or knurled patch is provided at the opposing location on the rear wall of the bag. In this particular embodiment, the patch is 30 to 50mm long and 20 to 40mm high, and spaced down by 0 to 10mm from the top edge, at which the bag opens.

In the as-produced state, the front and rear walls of the bag - which being very thin are also very flexible and conformable - lie closely against one another and tend to be held thus by static charges accumulated during manufacture. Since the top edges of the walls are exactly coterminous, and the plastic is smooth, it would normally be difficult to get any grip enabling them to be pulled apart. With the bag as described, however, it is a simple matter for the user to grip the bag at the patches 10, between the thumb and fingers of one hand, and make a "wiping" movement between those fingers and thumb. Because there is a relatively good frictional

engagement between the hand and the knurled or textured surfaces of the patches, this movement causes the back and front walls to move relative to one another so that the bag starts to open.

5 It will be understood that the central patch 10 illustrated is only one of a variety of possible arrangements of a grip-enhancing portion. For example, the patch could be elongated to a strip extending right along the top edge of the bag, provided that it is made in a manner which does not weaken the bag excessively for 10 the intended purpose. Or, it might be a strip extending down the wall of the bag, so that rubbing the bag between two hands e.g. at a central portion would still open it effectively. Other suitable arrangements will occur to 15 the skilled man, and will of course vary according to the material of the bag and the purpose for which it is intended.

 Figs. 2 and 3 show how vest carriers of the Fig. 1 type may be made. Figure 2 shows schematically the 20 adapted production line. Conventional elements of this are

 a supply roll 15 of blown-film extruded polyolefin tube 16 in flat form;

 a printing station 17 for printing a design (e.g. a 25 supermarket's name and characteristic pattern) on both sides of the film;

 a slit-sealing station 18 which slits the tube longitudinally into three "lanes" of equal width and

seals the slits, thus effectively turning one tube into three;

a gusset-forming station 19 at which the three travelling tubes are inflated to separate their walls, and plates pushed in at the side to form side gusset folds, and

a main sealing head 20 at which the three gusseted tubes are punched to form the shape of the handles, to cut the bags to length and to seal their bottom ends before they are stacked onto a take-off conveyor 21.

To these conventional features, our technique adds an additional impressing station 25, upstream of the conventional printing and cutting operations. At this impressing station, the tubular film 16 passes between an impressing roll 26 and a rubber back-up roll 27. The impressing roll surface has, as seen in Fig. 3, three spaced knurling surfaces 28 which are positioned so as to form the frictional patches 10 for each of the three lanes of the line. The knurling surfaces 28 impress their reticulated pattern through both layers of the film against the rubber back-up, but do not actually penetrate the film. Since the doubled film layer is subsequently separated by the blowing operation at the gusset-forming station 19, there is no problem with the front and rear walls tending to stick together at the impressed part.

While this embodiment positions the impressing location upstream of the main cutting operations, other locations may be appropriate e.g. if the type of bag

being produced is different. Equally, while the present system uses a roller to create the impressions, in other systems it may be appropriate to use a reciprocating stamp e.g. at some point where the material is held substantially stationary transverse to the stamping direction.

CLAIMS:

5 1. A plastic bag having opposed side walls and a top opening, characterised by an exterior enhanced-friction location to improve manual grip and thereby assist manual separation of the side walls.

10 2. A plastic bag according to claim 1 having two said enhanced-friction locations, on respective ones of the side walls.

15 3. A plastic bag according to claim 2 in which the enhanced-friction locations are aligned in opposition with one another.

 4. A plastic bag according to any one of the preceding claims in which the enhanced-friction location is localised towards the top opening.

20 5. A plastic bag according to claim 4 in which the enhanced friction-location is located at or adjacent the top edge of the bag, which surrounds the top opening.

25 6. A plastic bag according to any one of the preceding claims in which the enhanced-friction location comprises a localised patch of roughness formed in the plastics material of the bag.

7. A plastic bag according to claim 6 in which the patch of roughness is a knurled, stippled or perforated patch.

5 8. A plastic bag according to claim 6 or claim 7 in which the patch of roughness is from 20 to 40mm high and from 30 to 50mm long.

10 9. A plastic bag according to any one of the preceding claims which is a carrier bag having integrally formed handles at the top opening.

10. A plastic bag according to any one of the preceding claims made from plastic sheet less than 50µm thick.

15 11. A plastic bag according to any one of the preceding claims made from high-density polyolefin material.

20 12. A plastic bag made from plastics material less than 100 µm thick and having opposed side walls and a top opening, characterised by a localised patch of roughness formed integrally in the plastics material of the bag or near the top opening, to assist manual separation of the side walls.

25 13. A plastic bag according to claim 12 in which the patch of roughness is knurled, stippled or perforated.

14. A plastic bag according to claim 12 or claim 13 having a said patch on each of the opposed side walls, the patches being aligned with one another.

5

15. A method of making a plastic bag, characterised by forming at least one friction-enhancing location on the outside surface of the bag.

10

16. A method according to claim 15 in which the friction-enhancing location is formed by subjecting a tube or film of bag material to the impress of a rough element.

15

17. A method according to claim 16 in which the rough element is a localised knurling surface on an impressing roll.

20

18. A method according to claim 15 or claim 16 in which the bag material of the plastic bag is less than 50µm thick.

25

19. A plastic bag, or a method of making a plastic bag, substantially as described herein with reference to the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

Application number
GB 9221979.9

Relevant Technical Fields

(i) UK Cl (Ed.L) B8K (K2K1, K2H4)

(ii) Int Cl (Ed.5) B65D 33/00

Search Examiner
A C HOWARD

Date of completion of Search
12 NOVEMBER 1993

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE : WPI

Documents considered relevant following a search in respect of Claims :-
1-18

Categories of documents

- | | |
|--|---|
| <p>X: Document indicating lack of novelty or of inventive step.</p> <p>Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p>A: Document indicating technological background and/or state of the art.</p> | <p>P: Document published on or after the declared priority date but before the filing date of the present application.</p> <p>E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p>&: Member of the same patent family; corresponding document.</p> |
|--|---|

Category	Identity of document and relevant passages		Relevant to claim(s)
X	GB 1294652	(JOHNSON & JOHNSON) - see page 1 lines 31-36, page 2 lines 93-95	1-6,10-11,12,14-16,18
X	EP 0343763 A2	(SONOCO) - see column 4 line 18 - column 5 line 17	1,4,5,9,15
X	EP 0220476 A2	(DOW) - see column 1 lines 42-54; column 3 lines 54-57	1-6, 10-12, 14-16, 18
X	EP 0089680	(UNION CARBIDE) - see pages 6-7, 9	1-7, 11-17
X	US 4253562	(VANDENBERG et al) - see column 2 lines 42-45	1, 15
X	US 4421805	(PRADER) - see column 1 lines 32-36	1, 15

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).